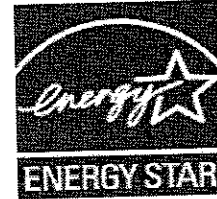


**WESTCHESTER COUNTY FAIR AND AFFORDABLE HOUSING
IMPLEMENTATION PLAN**
August 9, 2010

Appendix E-2(iii): Summary & Outline of Green Technology



ENERGY EFFICIENT HOMES FOR THE 21st CENTURY



ENERGY STAR FOR NEW HOMES BUILT UNDER THE HUD HOME AND CDBG PROGRAMS

Grantees participating in the HUD Home Investment Partnership Program (HOME) and the Community Development Block Grant Program (CDBG) should adopt the Energy Star standard for new construction and gut rehabilitation. Since 1995 buildings can qualify for the Energy Star standard in a manner similar to Energy Star products such as compact fluorescent bulbs, refrigerators and computers. The standard is for residential single- and multifamily buildings with not more than three stories.

Why build to the Energy Star Standard? The benefits go well beyond just saving energy. Benefits also include:

- Lower operating costs for tenant –also allows owner to borrow more.
- Increased comfort – draft free house
- Better quality of construction resulting in more durable structure, e.g., prevention of mold.
- Higher value – more and more recognized by appraisers as creating higher value.
- Reduced air pollution – less need for more energy production.

What qualifies a home for the ENERGY STAR label?

- The Energy Star label is awarded to buildings that are at least 20% more efficient than a reference home that meets the International Energy Conservation Code (IECC) of 2004.
- Note that fewer than half the states have adopted this code.
- Many are still on the '93 Council of American Building Officials Model Energy Code.

How to meet the standard?

- It is a performance-based system. There are many ways to meet the standard. Only those things that are necessary to achieve a score of ≤ 80 on the Home Energy Ratings (HERS) scale need be done.
- For homes, EPA relies on the HERS scoring overseen by the Residential Energy Services Network (RESNET).
- The new HERS Index is based on a score of 100 [the reference house that meets the 2004 IECC] and each point below that approximates a one percent reduction in energy use.
- The new ENERGY STAR for Homes threshold requires a HERS Index of 80 in Northern states, or roughly 20 percent more efficient than IECC, and a HERS Index of 85 in the Southern states, or roughly 15 percent more efficient than IECC.

The heart of ENERGY STAR for homes is a certification that is based on inspections and objective testing at the completion of construction:

- ***Inspection.*** - The home energy rater inspects the home, with software, measures its energy characteristics, such as insulation levels, window efficiency, wall-to-window ratios, heating and cooling system efficiency, the solar orientation of the home, and the water heating system
- ***Testing.*** - Diagnostic testing, such as blower door for building air leakage and duct blaster testing for forced air systems leakage is part of the rating.

Appendix H-2(iii)

What does it cost to reach that level?

- It may cost \$1-2,000 per home. In some jurisdictions utility companies participate as EPA partners by providing the certification service without cost; some may also provide incentive
- CDBG can pay for some of the added costs in meeting ENERGY STAR standards even with HOME-financed production, if the costs are not covered by HOME.
- Appraisers are beginning to recognize the added value achieved by the ENERGY STAR certification.

How can you put ENERGY STAR construction into your program?

- By incorporating the following language in your RFP or procurement process for housing:
 “All new and gut rehab residential buildings up to three stories shall be designed to meet the standard for Energy Star Qualified New Homes (≤80 [85 for South] on the HERS Rating Scale). All procedures used for this rating shall comply with National Home Energy Rating System guidelines.”
- The developer takes care of all the rest working with the infrastructure, i.e. the HERS rating system and contractor. **It’s as simple as that!**

What are the roles and responsibilities of all the participants in getting Energy Star for homes?

Grantee / PJ:	Adopts ES standard.
Developer/CDC:	Reviews plans with HERS contractor (certified rater.)
Contractor:	Builds according to the plans.
HERS contractor:	Inspects and tests building; evaluates energy efficiency
Property owner:	Enjoys significantly reduced operating costs.
Occupant:	Enjoys improved comfort and healthier living environment.

ENERGY STAR REFERENCES

-See the EPA web site: partnership, marketing and technical resources -National infrastructure exists for implementation of ENERGY STAR for homes. Accrediting organizations are the Residential Energy Services Network (RESNET) and states. For a list of **HERS** Certified Contractors available by state, see:

http://www.natresnet.org/directory/rater_directory.asp#Search

You can find very comprehensive technical stuff in plain English at

: <http://www.buildingscience.com>The DOE Webpage for State Energy Codes is:

http://www.energycodes.gov/implement/state_codes/state_status_full.phpEIA Webpage for Energy uses by State /Source/Sector

http://www.eia.doe.gov/emeu/states/_states.html

THE POWERPOINT PRESENTATION, “ENERGY STAR FOR GRANTEES”

- Summarized above, it is for grantees participating in the HUD Home Investment Partnership Program(HOME) and the Community Development Block Grant Program (CDBG).
- It describes ENERGY STAR for *new* homes: how it works; why it works; and how Grantees can easily adopt it for their residential new construction projects.
- Our purpose is “to leverage your role as CDBG and HOME grantees to build higher quality, more energy efficient, and thus more affordable housing.”
- This PowerPoint is available from the HUD web site:
<http://www.hud.gov/offices/cpd/library/energy/energystargrantees.ppt>

NEW YORK STATE
DIVISION OF HOUSING
AND
COMMUNITY RENEWAL

NEW YORK STATE
HOUSING TRUST FUND
CORPORATION



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December 2008

Green Building Criteria Reference Manual

DEDICATION

This *Green Building Criteria Reference Manual* is dedicated in memory of Leslie Adler, Director of the Design Services Unit at DHCR, who passed away in July 2008. Leslie was a dedicated architect and valued member of the DHCR team who truly cared about providing safe, decent affordable housing for low-income residents of New York State. Leslie was instrumental in the development of DHCR's Green Building Initiative and leaves behind a memory that will never fade.

DHCR/HTEC
Green Building Criteria
Reference Manual

Table of Contents

Introduction.....1

Green Building Criteria: An Overview.....1

Green Building Criteria Categories2

Green Building Criteria Checklist4

Comment Page7

SECTION A – THRESHOLD CRITERIA (Mandatory)

A-1.....Energy Star Appliances and Lighting Interior.....8

A-2.....Landscaping.....8

A-3.....Water-Conserving Fixtures.....9

A-4.....Efficient Lighting: Exterior10

A-5.....Radon Reduction Systems11

A-6.....Lead-Safe Work Practices12

SECTION B – REQUIRED TO QUALIFY FOR THE GREEN BUILDING INITIATIVE

Integrated Design Process

B-1.....Green Development Plan.....12

Location and Neighborhood Fabric

B-2a.....Smart Site Location: Proximity to Existing Development.....14

B-2b.....Smart Site Location: Protecting Environmental Resources.....14

B-2c.....Smart Site Location: Proximity to Services: New Construction.....16

B-2d.....Compact Development: New Construction16

B-2e.....Walkable Neighborhoods: Sidewalks and Pathways17

B-2f.....Smart Site Location: Passive Solar Heating / Cooling.....17

B-2g.....Transportation Choices: Proximity to Public Transit18

Site Planning/Environmental Impacts

B-3a.....Surface Water Management Plan.....19

B-3b.....Environmental Remediation20

Healthy Living Environment

B-4a.....Low / No VOC Paints, Primers, Adhesives and Sealants.....20

B-4b.....Formaldehyde-free Composite Wood.....21

B-4c.....Green Label Certified Floor Coverings.....22

B-4d.....Exhaust Fans-Bathrooms22

B-4e.....Ventilation.....23

B-4f....HVAC Sizing.....	24
B-4g.... Water Heaters-Mold Prevention.....	24
B-4h.... Water Heaters – Minimizing CO.....	25
B-4i.... Cold Water Pipe Insulation.....	25
B-4j....Materials in Wet Areas: Surfaces and Tub and Shower Enclosures.....	26
B-4k... Clothes-Dryer Exhaust.....	26
B-4l... Integrated Pest Management.....	26

Operations and Maintenance

B-5a....Building Maintenance Manual.....	27
B-5b....Occupant’s Guide.....	27
B-5c....New Resident Orientation.....	28

**SECTION C – REQUIRED TO QUALIFY FOR GREEN BUILDING MEASURES
BEYOND THE STANDARD CRITERIA**

Location and Neighborhood Fabric

C-1....Smart Site Location – Brownfield, Grayfield, or Adaptive Reuse Site.....	28
---	----

Energy Efficiency

C-2....Renewable Energy.....	30
------------------------------	----

Materials Beneficial to the Environment

C-3a... Construction Waste Management.....	31
C-3b... Recycled Content Material.....	32
C-3c.... Certified, Salvaged and Engineered Wood.....	33
C-3d... Water-Permeable Walkways and Parking Areas.....	33
C-3e....Reducing Heat-Island Effect: Roofing and Paving.....	34

Introduction

The Division of Housing and Community Renewal (DHCR) and the Housing Trust Fund Corporation (HTFC) have developed this Green Building Criteria Reference Manual to educate and inform affordable housing developers in developing sustainable and healthier housing developments. The Manual is intended to provide details on the various measures that developers must undertake in order to satisfy DHCR/HTFC requirements.

Green building design integrates materials and methods that promote environmental sustainability, economic vitality and social benefits through design, construction and operation of the built environment. DHCR/HTFC encourages green sustainable development that aligns affordable housing investment strategies with environmentally- responsible building practices.

The Green Building Initiative elements that are proposed to be incorporated in a project must be identified in the application attachments: Green Building Criteria Checklist, preliminary plans, and the outline specifications.

The New York State Division of Housing and Community Renewal (DHCR) and the Housing Trust Fund Corporation (HTFC) extend a special thank you to the Enterprise Foundation for their support and guidance provided in developing the DHCR/HTFC Green Building Initiative.

Green Building Criteria Overview

The green building criteria and sustainable development criteria promote public health, energy conservation, operational savings and sustainable building practices in all housing design. As a result, the strategies in the following pages enhance affordable housing and communities as a whole.

In addition to increasing resource efficiency and reducing environmental impacts, green building strategies can yield cost savings through long-term reduction in operating expenses. The benefits include improved energy performance and comfort, a healthier indoor environment, increased durability of building components, and simplified maintenance requirements that can lead to financial efficiencies for property managers and owners. Green building practices improve the economics of managing affordable housing while enhancing quality of life for residents. When green building practices are incorporated into the location of affordable housing, placing homes near community amenities such as public transportation to create walkable, livable neighborhoods, the benefits for residents and communities include fewer sprawl-related transportation impacts.

Green Building Criteria Categories

Integrated Design Process

An integrated design process incorporates sustainability up-front, uses a holistic and total-systems approach to the development process, and promotes good health and livability through the building's life cycle. The goal is to establish a written commitment by the development team that articulates the project's green building and sustainability criteria and objectives through the building's life cycle.

Sustainable building strategies should be considered from the moment the developer initiates the project. The professional development team includes the developer, architect, engineer, landscape architect, LEED™ Accredited Professional or experienced green building design specialist, contractor, and asset and property management staff. Whenever possible, the team also should include maintenance staff and resident representatives. The team must be committed to environmentally responsive and healthy building principles and practices.

Location and Neighborhood Fabric

Location within existing communities, or contiguous to existing development, helps conserve land and the spread of storm-water runoff to new watersheds. It also reduces travel distances. Proper site selection avoids development of inappropriate sites and damage to or loss of fragile, scarce environmental resources. The greatest savings come from developing in areas that already have infrastructure and civic amenities. Site selection is also an opportunity to clean up and redevelop brownfields, and restore the land and infill segmented communities.

Compact development encourages more resource-efficient development of land, reduces development costs and conserves energy. It can also contribute to more walkable, livable communities, while helping restore, invigorate, and sustain livable development patterns. Making the streetscape safer and more inviting for walkers and bicyclists encourages alternative transportation choices to the automobile. It also promotes physical activity and public health, while creating opportunities for social interaction and increased safety by bringing more eyes on public spaces.

Site Planning/Environmental Impacts

Sustainable design and site planning integrate design and construction strategies to minimize environmental site impacts; enhance human health; reduce construction costs; maximize energy, water, and natural resource conservation; improve operational efficiencies, and promote alternative transportation.

Water Conservation

Water efficiency conserves finite fresh water resources and reduces utility bills. Significant water savings can be realized by specifying and installing water-efficient appliances and plumbing fixtures, implementing low-water landscape and irrigation strategies, and taking advantage of rainwater catchment and gray water sources.

Energy Efficiency

Energy efficiency helps to maximize resident comfort and health, and reduces utility bills. Conservation measures mitigate the accumulative burdens of energy production and delivery, extraction of non-renewable natural resources, degradation of air quality, global warming and the increasing concentration of pollutants.

Materials Beneficial to the Environment

Reducing, reusing and recycling building materials conserve natural resources and reduce emissions associated with manufacturing and transporting raw materials. Many techniques and building products on the market contribute to more durable, healthy and resource-efficient buildings.

Healthy Living Environment

The importance of a healthy living environment is a significant green building issue directly affecting residents. Creating a healthy living environment involves the use of materials that do not cause negative health impacts for residents or workers, especially for more sensitive groups such as children, seniors and individuals with existing respiratory problems and compromised immune systems.

Operations and Management

Operations and management (O&M) practices can positively impact the building owner's costs and residents' health, comfort and safety. Sustainable building O&M practices enhance resident health and operational savings. The key to successful building performance is the integration of O&M plans, education and cost-effective, low-maintenance design.

Green Building Criteria Checklist

Applicant:				
Project Name:				
<p>Instructions: In order to qualify and receive points for the Green Building Initiative, applicants must complete the applicable sections of this checklist. The items listed in Section A are mandatory. Section B contains both mandatory and optional standard criteria. Section C must be completed if applicant is including green measures in the project beyond the standard criteria. All non-applicable items must be explained in the "Comments" section at the end of this attachment. More specific criteria information is included in DHCR's Green Building Criteria Reference Manual.</p>				
<p>SECTION A – Threshold Criteria - MANDATORY All of the criteria in this section must be included in all projects. Possible exceptions include items A-2, A-5 and A-6 where the criteria may not be applicable to your project. <i>Note:</i> These criteria have been included in the DHCR/HTFC Design Handbook.</p>				
Y	N	N/A	Item	Criteria
			A-1	Use Energy Star appliances, light fixtures and heating systems or the equivalent which will produce the same or comparable energy efficiency or savings.
			A-2	Landscaping: Select native or non-invasive new trees and plants that are appropriate to the site's soil and microclimate.
			A-3	Install water conserving fixtures.
			A-4	Use daylight sensors or timers on outdoor lighting to maximize energy efficiency.
			A-5	Install a passive radon-reduction system (new construction) or an active radon-reduction system and measures (rehabilitation projects) to be activated should tests confirm the presence of radon gas in the building.
			A-6	Use lead-safe work practices during renovation, remodeling, painting and demolition (for properties built before 1978).
<p>SECTION B – Standard Criteria (Required to qualify for the Green Building Initiative) Use this section to identify the criteria included in your project.</p>				
Integrated Design Process				
Y	N	N/A	Item	Criteria
			B-1	Green Development Plan (MANDATORY): Submit a plan outlining the integrated approach used for this development that demonstrates involvement of the entire development team.
Location and Neighborhood Fabric (Applicants must include a minimum of 4 criteria)				
Y	N	N/A	Item	Criteria
			B-2a	Smart Site Location: Proximity to Existing Development: Locate on a site with access to existing roads, water, sewers and other infrastructure within or contiguous to existing development.
			B-2b	Smart Site Location: Protecting Environmental Resources: Do not locate new development in close proximity to wetlands, critical slope areas, prime farmland, public parkland, critical habitat or 100-year floodplain.

			B-2c	Smart Site Location: Proximity to Services: Locate projects in close proximity to community and retail facilities.
			B-2d	Compact Development: Achieve densities for new construction of at least six units per acre for detached/semi-detached houses; 10 for town homes; 15 for apartments.
			B-2e	Walkable Neighborhoods: Sidewalks and Pathways: Connect project to the pedestrian grid.
			B-2f	Smart Site Location: Passive Solar Heating/Cooling: Orient building to make the greatest use of passive solar heating and cooling.
			B-2g	Transportation Choices: Locate project in close proximity to public transit services.
Site Planning/Environmental Impacts				
Y	N	N/A	Item	Criteria
			B-3a	Surface Water Management Plan (MANDATORY): Provide SWMP identifying how storm water will be captured and address on the project site.
			B-3b	Phase I Environmental Site Assessment: Submit a Phase I ESA in accordance with ASTM Standard Practice for ESAs.
Healthy Living Environment (Applicants must include a minimum of 7 criteria)				
Y	N	N/A	Item	Criteria
			B-4a	Low/No VOC Paints, Primers, Adhesives and Sealants: All interior paints, primers, adhesives and sealants must contain low or no VOCs.
			B-4b	Formaldehyde-free Composite Wood: Use particleboard and medium density fiberboard (MDF) that is certified compliant with the ANSI A208.1 and A208.2.
			B-4c	Green Label Certified Floor Covering: Do not install carpets in below grade living spaces, entryways, laundry rooms, bathrooms, kitchens or utility rooms. If using carpet, use products that meet the Carpet and Rug Institute's Green Label certified carpet, pad and carpet adhesives.
			B-4d	Exhaust Fans - Bathroom (New Construction): Install Energy Star-labeled bathroom fans that exhaust to the outdoors and are equipped with a humidistat sensor or timer, or operate continuously.
			B-4e	Ventilation (New Construction): Install a ventilation system for the dwelling unit that provides 15 cubic feet per minute of fresh air, per occupant.
			B-4f	Cooling Equipment: Size heating and cooling equipment in accordance with the Air Conditioning Contractors of America (ACCA) Manual, Parts J and S, ASHRAE handbooks, or equivalent software, to prevent short-cycling of heating or air conditioning and ensure adequate dehumidification.
			B-4g	Water Heaters: Mold Prevention: Use tankless hot water heaters or install conventional hot water heaters in rooms with drains or catch pans piped to the exterior of the dwelling and with non-water sensitive floor coverings.
			B-4h	Water Heaters: Minimizing CO: Specify direct vented or combustion sealed water heaters if the heater is located in a conditioned space.
			B-4i	Cold Water Pipe Insulation: Insulate exposed cold water pipes in climates and building conditions susceptible to moisture condensation.
			B-4j	Materials in Wet Areas: Use materials with smooth, durable, cleanable surfaces. Do not use mold-propagating materials such as vinyl wallpaper and unsealed grout.

			B-4k	Clothes-Dryer Exhaust: Clothes dryers must be exhausted directly to the outdoors.
			B-4l	Integrated Pest Management: Seal all wall, floor and joint penetrations to prevent pest entry. Provide rodent and corrosion proof screens (e.g., copper or stainless steel mesh) for large openings.
Operations and Maintenance				
Y	N	N/A	Item	Criteria
			B-5a	Provide a Building Maintenance Manual (MANDATORY)
			B-5b	Provide an Occupant's Green Building Guide (MANDATORY)
			B-5c	Provide New Resident Orientation (MANDATORY)
SECTION C (Applicants must include a minimum of one criteria if including green building measures beyond the standard criteria.)				
Location and Neighborhood Fabric				
Y	N	N/A	Item	Criteria
			C-1	Smart Site Location: Brownfield, Grayfield or Adaptive Reuse Site: Locate the project on a brownfield, grayfield or adaptive reuse site.
Energy Efficiency				
Y	N	N/A	Item	Criteria
			C-2	Renewable Energy: Install photovoltaic (PV) panels, wind turbines or other acceptable renewable source, to provide at least 10 percent of the project's estimated electricity demand.
Materials Beneficial to the Environment				
Y	N	N/A	Item	Criteria
			C-3a	Construction Waste Management: Develop and implement a construction waste management plan to reduce the amount of material sent to the landfill by 25%.
			C-3b	Recycled Content Material: Use 25% materials with recycled content; provide calculation for recycled content percentage based on cost or value of recycled content in relation to total materials for project.
			C-3c	Certified, Salvaged and Engineered Wood: Use at least 50 % (by cost or value) wood products and materials that are certified in accordance with the Forest Stewardship Council, salvaged wood, or engineered framing materials.
			C-3d	Water-permeable walkways and parking areas: Use water-permeable materials in 40% or more of walkways and 40% or more of paved parking areas.
			C-3e	Reduce Heat-Island Effect: Roofing and Paving: 1) Use Energy Star-compliant and high-emissive roofing for the entire roof or, install a "green" (vegetated) roof covering at least 50% of the roof; and 2) Use light-colored/high-albedo materials and/or an open-grid pavement over at least 30% of the site's hardscaped area.
Signed (Applicant): _____ Date: _____				
Signed (Green Design Professional): _____ Date: _____				